

DRAPER'S
SELF-RECORDING
THERMOMETER.

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Description = =

...AND...

= = Directions.

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KEEP FOR FUTURE REFERENCE.

DRAPER'S



Self-Recording Thermometer.

(SMALL SIZE, 9" x 14".)

THIS instrument gives a continuous record of the temperature on a weekly chart, showing every minute change of temperature during the day and night.

It will be found very useful to those who are interested in Baths, Breweries and Maltheuses, Cold Storage Warehouses, Cotton Mills, Drying Rooms, Ovens and Kilns, Fire Alarms, Greenhouses, Heating and Ventilating of Asylums, Churches, Hospitals, Schoolrooms and Public Buildings, Refrigerating Plants, **METEOROLOGY, CLIMATOLOGY,** etc.

It is now used as a standard by the following Colleges and Observatories:

HARVARD COLLEGE, Cambridge, Mass.

LICK OBSERVATORY, San José, Cal.

MASS. AGRICULTURAL COLLEGE, Amherst, Mass.

BLUE HILL METEOROLOGICAL OBSERVATORY, Readville, Mass.

COLORADO AGRICULTURAL COLLEGE, Fort Collins, Colo.

N. Y. METEOROLOGICAL OBSERVATORY, N. Y. City.

WELLESLEY COLLEGE, Wellesley, Mass.

HASTINGS OBSERVATORY, Hastings-on-Hudson.

And many others throughout the United States.

The main parts of this Thermometer are: Iron Frame, Clock, Metallic Disc, two Metallic Thermometer Strips, Recording Pen, Lever and Case.

The diagram on the opposite page shows the location of parts.

A Clock Arbor.

C Clock Box.

D Ink Pen.

F Arc.

L Recording Lever.

TT Metallic Thermometer Strips.

PP Platinum Wires.

SS Screws for adjusting Recording Lever.

W Winding Arbor of Clock.

XX Screw Holes for fastening instrument in position.

THE IRON FRAME is the foundation of the instrument, and to it are fastened the clock, the two metallic thermometer strips, the frame for holding the recording lever and the copper case. The back of the frame is perforated so as to allow the air to circulate freely around the thermometer strips.

THE CLOCK is an eight-day pendulum movement, made specially for the purpose.

THE METAL DISC is placed on the central arbor of the clock and is caused to make one complete revolution in a week. To the metal disc is fastened by suitable means a paper chart which is divided into hours and days of the week, by radiating lines, and also Fahrenheit degrees of temperature from 20 degrees below zero to 110 degrees above by concentric lines.

THE THERMOMETERS OR METALLIC STRIPS are made of two metals fastened together by suitable means; one of the metals expanding more than the other, causes the compound strips to bend in one direction with an **increase** of temperature, and in the other direction with a **decrease** of

temperature. Being long and thin they present a large surface to the air and are therefore very sensitive to changes of temperature.

THE RECORDING LEVER FRAME is fastened to the iron frame. On the arbor that carries

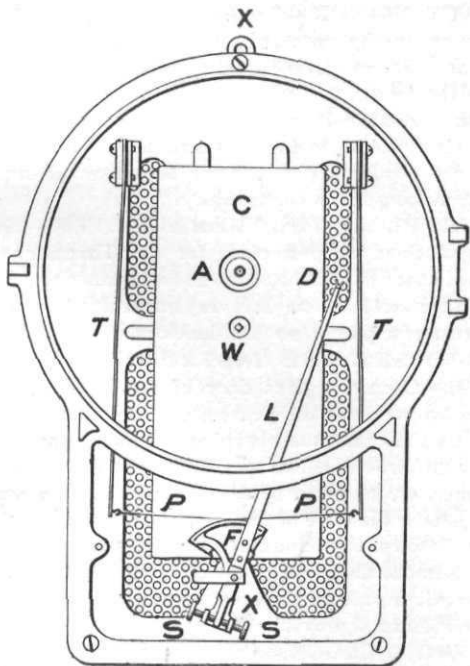


Diagram of Recording Thermometer with two Thermometric Strips.

the lever is also fastened a small arc, on which rest the two fine wires connecting the metallic thermometer strips to the recording lever. At the lower end of the arc are two thumb screws for the purpose of adjusting the ink pen on the lever to the right degree of temperature on the paper chart.

THE CASE is made of polished copper and serves to protect the mechanism of the instrument. *Read and study carefully the following directions before attempting to take instrument out of packing box:*

TO TAKE THERMOMETER OUT OF PACKING BOX.—Remove the name plate of the instrument by unscrewing the two screws, one at either side, and lift it off. Just under the name plate on the iron frame will be found a common wood screw; remove it, and also the one at the top of the iron frame on the outside of the Thermometer case. You may now lift the Thermometer out of the packing box without injury.

TO PLACE THE THERMOMETER.—Having decided upon a place for the Thermometer, fasten the instrument with the two screws that held it in the packing box. It is very important to have the instrument plumb, so that the clock will be in beat.

TO SET THE INSTRUMENT WORKING.—Open the glass door of the Thermometer, and spring back the pen lever so that the pen just clears the chart, then revolve the top of the metal disc towards the left, by means of the knob in the center, or, to get a better leverage, use the small clips near the edge of the disc, and at the same time pull it towards you until it screws off the clock arbor.

Remove the cover of the clock box and place the pendulum ball on the hook at the lower end of the pendulum rod provided for that purpose.

WIND CLOCK.—Projecting through the cover of the clock box (C) will be found the steel winding arbor (W) of the clock, insert the key and turn to the left until wound up.

TO PUT PAPER CHART ON METAL DISC—Place the hole in the center of the chart on the knob and the edge of the chart under the clamps near the edge of the metal disc; it is immaterial where the two stays near the center puncture the chart.

TO PUT METAL DISC ON CLOCK.—

Spring the pen lever sufficient to clear the chart and place the knob on the clock arbor (A). Press it on tight. (In removing the disc always turn the top of it to the left.) Still holding the pen lever, revolve the metal disc either way until the proper hour of the day of the week comes directly under the point of the ink pen (D). The pen lever may now be released and allowed to touch the surface of the chart, so as to make the record of temperature. It will assume the correct position in relation to the degree of temperature.

TO FILL THE INK PEN.—Three or four drops of the specially prepared ink from the glass dropper is sufficient to last a week.

TO ADJUST THE CLOCK TO TIME.—If the paper chart revolves too fast, or too slow, past the point of the ink pen, it shows that the clock needs **regulating**. This may be done by removing the metal disc and the cover to the clock box. If the clock runs slow, raise the pendulum ball by turning the thumbscrew at the bottom of it to the right; if it runs fast, lower the ball by turning the thumbscrew to the left, the same as in any ordinary pendulum clock. The requisite amount to turn this regulating screw can only be determined by trial.

TO ADJUST THE THERMOMETER.—If from accident or any other cause the Thermometer should be found to indicate the wrong degree of temperature, it may be readjusted in the following manner:

Remove the name plate by unscrewing the two screws which hold it in place. On the lower end of the arc (F) are two adjusting screws (SS.) by means of which the ink pen can be adjusted on the paper chart so as to give a higher or lower reading of temperature.

PLATINUM WIRES.—If perchance the pla-

tinum wires which connect the ends of the Thermometer strips (TT) to the arc (F) of the lever (L) should get broken, new ones will be forwarded on application, and you can put them on yourself, as they are all of a uniform length and are interchangeable.

GLASS COVER.—In case the glass which covers the chart should get broken, any glazier can replace it.

CLOCK STOPPING.—If after a time it is found necessary to have the clock cleaned, it can be removed by taking off the cover of the clock box and unscrewing the four screws that hold it to the iron frame. It may now be lifted out without doing injury to the instrument, and the clock can be sent to any clock or watch maker to be cleaned. If any of the parts of the clock have become injured, or worn beyond repair, duplicate parts will be supplied. All parts of this instrument are interchangeable.

This Thermometer can be arranged so as to record the temperature at a distance of, say 3 feet, which makes it especially advantageous for use both in hot and in cold rooms, where, very often, it is dark and the temperature is effected when the doors are opened.

The larger size Thermometer (14" x 20") is made with the following ranges of degrees Fahrenheit: 50° below zero to 80° above, 20° below zero to 110° above, 70° to 200° and 0 to 260°, depending upon the purpose for which it is intended.

Attention is also invited to the other instruments of our manufacture, *viz.*: Self-Recording Barometers, Rain and Tide Gauges, Force of Wind, Anemoscopes (direction of wind) and Anemometers (velocity of wind), both indicating and recording.

To all parties interested, specimen record sheets and full information will be sent on application.